MEIJIDENKI

Machine Data Recorder MDR－3004

User's manual

Introduction

Thank you very much for your purchasing of our product 『e-p@k MDR-3004』.
e-p@k is the tool provided by our company to help operation rate improving activity of customer's equipment.Please carefully read this manual before using and use our e-p@k correctly to improve your company's profit by making use of function of 『e-p@k MDR-3004』.

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The first chapter Notices

1． Notice for usage related to safety

In this manual important contents are listed to use safely and correctly by preventing safety hazard and damage of property for user and adjacent person from occurring. Please read this manual carefully before using this machine and comply with listed matters.Also never execute improper operations not listed in this manual otherwise it could be cause of damage of MDR-3004 and injury for person.Remember that failure･trouble of personal computer and erasing･damage of data or failure･trouble of this product caused by improper handling shall be out of guarantee of our company.

1－1. Danger

This indication mark suggests the handling ignoring the mark may lead to death or serious injury.

(1). Warning matters on design

- This product is not supposed to use operation control device of equipment･device other than「e-p@k system」. Failsafe system design for failure and stoppage of this product shall be executed when this product is used for these usages. Also in this case install stop switch･emergency stop switch separately giving priority to this product.
- Never apply this machine to the usage related to safety of device･human body.
- This product is not supposed to be applied such usages as aircraft instruments, aerospace instrument, main line communication device, nuclear energy control equipment and medical instrument related to life support where extremely high reliability and safety are required. Therefore this product cannot be used for these usages.

(2). Warning matters on mounting

- Electric shock hazard could be occurred if this product is disassembled because high voltage applied portion is present in this product. Never disassemble this product.
- Do not modify this product. There is hazard of fire and electric shock.
- Do not use this product at the place where flammable gas is present. There is hazard of explosion.

(3). Warning items for wiring work

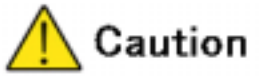
- Execute installing confirming electric power is not supplied when interface connector is connected because there is potential hazard that electric shock could be occurred.
- Do not use this product applying the voltage other than indicated power source voltage. There is potential hazard that fire, electric shock, breakage, and explosion could be occurred.
- Do not touch the equipment, etc. with wet hands. It could be cause of electric shock if power source plug is connected to plug outlet. Also it could be cause of failure of this product even if power source plug is not connected to plug socket.

(4). Others

- Do not execute disassembly, modification, and repairing of this product. There is potential hazard that fire, electric shock, breakage, and explosion could be occurred. Also we may decline repairing when seal of this product is removed or user executed disassembly, modification, and repairing.

1－2. Caution

This indication mark suggests the handling ignoring the mark may lead to injury or physical damage.



(1). Notices during mounting

- Install this product firmly and steadily. Otherwise failure or falling could be occurred due to vibration.
- Attach cable to connector surely. Otherwise it could be cause of incorrect input or incorrect output.
- Do not drop this product or do not give strong impact. It could be cause of fire due to short circuit or electric shock could be occurred if the product is served without check. Consult with information center or distributor of our company that you have purchased.

(2). Notices for wiring work

- Wiring to main body shall be executed correctly after confirming rated voltage. It could be cause of fire and failure when power source is connected to other than rated voltage and incorrect wiring should be executed.
- Pay attention so that any foreign substance such as chip or wiring waste accidentally enter into main body. It could be cause of fire, failure, and malfunction.
- Installation of main body shall be executed by following the warning·notice of instruction of PLC manufacturer and peripheral equipment manufacturer.

(3). Notices for disposal

- Disposal of this product shall be handled as industrial waste.

(4). Others

- All data inside personal computer (hard disk, etc.) shall be saved in MO and FD, etc. as backup when software is installed or before change when any of computer environment is tried to change. Suffering can be controlled at the minimum when data was erased or damaged by occurrence of failure and handling error. Remember that we have no liability for erasing or damage of data due to neglecting of data backup saving.

1－3. Privention from failure

- It could be cause of failure if this product is handled other than environment specification condition.
- Avoid usage under insufficient ventilation to prevent temperature rise. Also do not stock and use of this product at high temperature.
- Avoid usage at the place where rapid heat change is resulted or dew condensation is expected. Otherwise failure could be happened.
- Do not put water, liquid, or metallic parts into this product. Otherwise failure or electric shock could be resulted.
- Avoid storing and using of this product under the direct sun shining.
- Do not store or use this product at the place where shock is given or vibration is applied because this product is precision equipment.
- Do not store or use this product at the place where chemicals is vaporizing and diverging air and chemicals is adhering.

  Acid·alkalis·other salt…failure due to corrosion

  Organic solvent……fire
- Do not wipe the acrylic part of the maintenance hatch of this product with cloth dipped into thinner and organic solvents.
- Do not place substance on this product. This could be cause of damage or failure.
- Do not wipe this product with cloth dipped into such organic solvents as thinner and benzine, etc. Dirt shall be wiped off using dry and clean cloth.
- Handling of personal computer, PLC, and peripheral equipment shall be executed according to procedure specified by manufacturer of these devices after carefully reading respective manual.
- Do not install this product at following place. Otherwise it could be cause of electric shock and fire, ill effect on product, and cause of failure.
- Where strong magnetic field or static electric charge is generated and dusty is present.

・Where temperature or humidity exceeds limit of applicable environmental specification specified in this product manual or dew condensation is present.
  ・Where foundation is uneven or vibration is generated.
  ・Where direct sun light is expected, periphery of fire, or hot air stagnating.
  ・Where hazardous place such as electric leak or water leak is expected.
  ・Dusty place.

【Caution】 Do not try to turn off power source of main body or reset the system while access lamp is lit/flickering. Otherwise data and CF could be erased and damaged.

2. Guarantee and inspection

2－1. Guarantee and repairing condition

(1). Repairing charge will be requested in following cases even if the product is guarantee period.
- Failure or damage caused by falling or shock, etc. during transferring (moving) after delivery or improper handling of your company.
- Failure and damage due to fire, earthquake, flood disaster, thunderbolt, other act of providence, and pollution and abnormal voltage.
- Failure and damage of this product induced by other equipment connected to this product and improper usage of consumable part and media.
- Failure caused by usage under out of range of this specifications.

(2). Exemption of guarantee
- When repairing and modification, etc. was executed other than our company.

(3). Guarantee is objected only for this product only and induced damage from failure of this product, repairing and replacing in the field are exempted from guarantee.

(4). Repairing will be made in our company by sending back actual product to our factory as a rule.

(5). Guarantee period shall be for 3 months for the failure of the same repaired portion.

2－2. Guarantee period

(1). Guarantee period

Guarantee period shall be 12 months after shipping from our factory. (For three (3) months when failure is the same repaired portion.) We will repair free of charge (factory repairing) when cause of failure is due to our company's responsibility under normal environmental condition specified in general specifications.

(2). Guarantee range

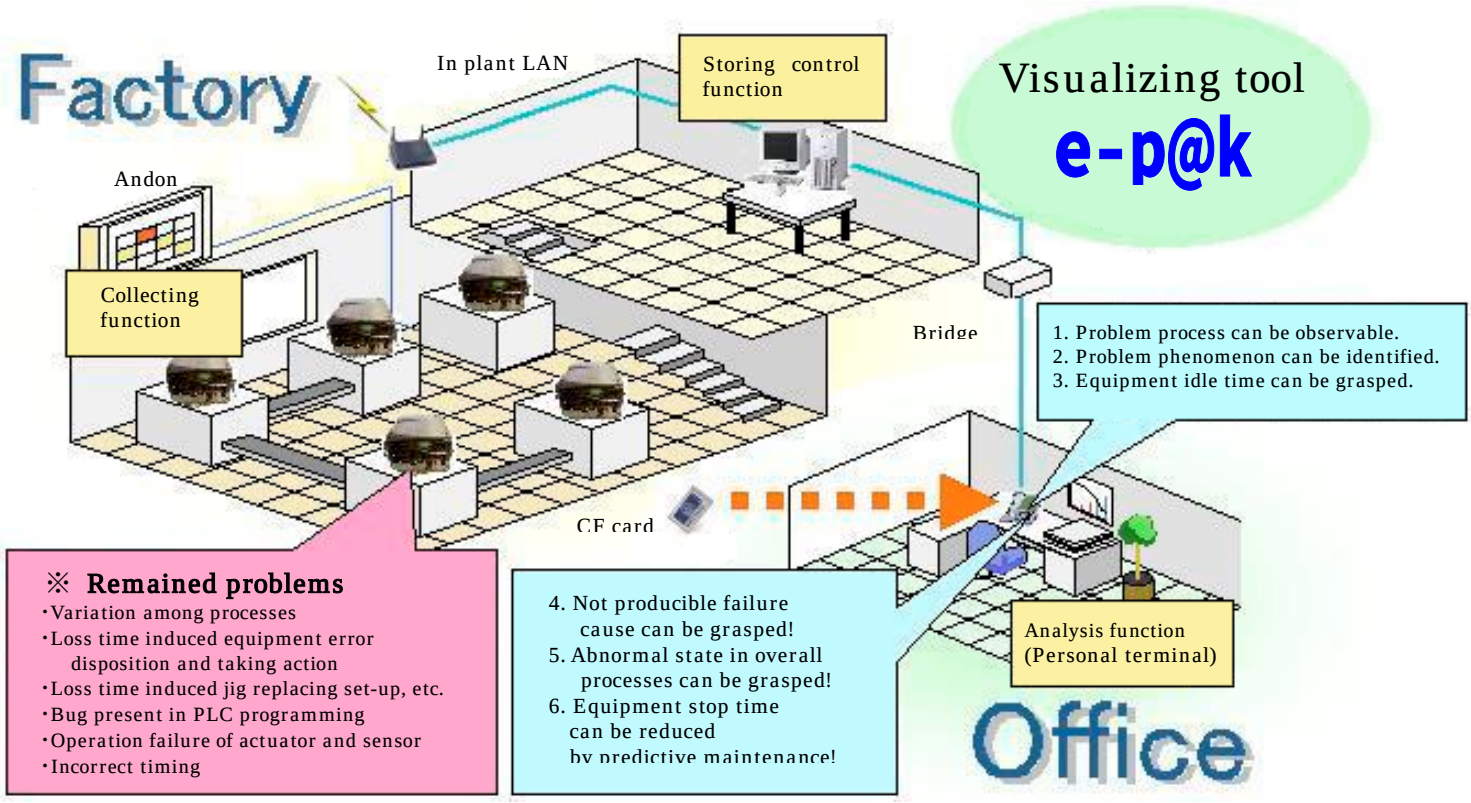
Such software other than preinstalled「e-p@k system」as system, application software, and drivers that are installed by customer shall be controlled by customer.

The second chapter Outline of system

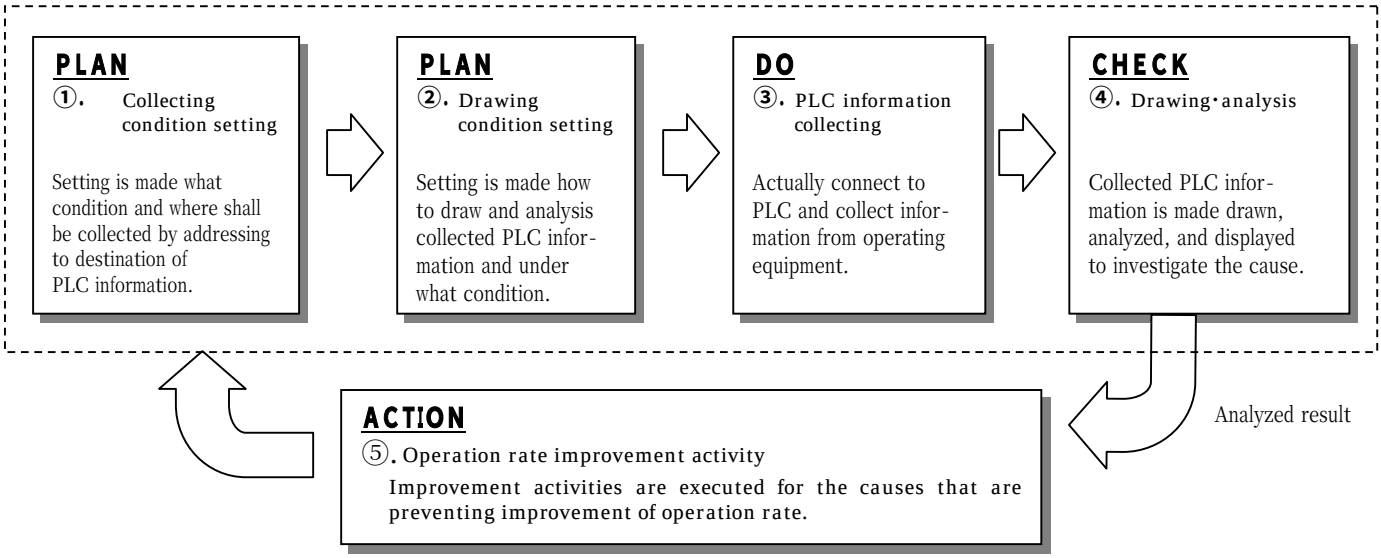
1. What is e-p@k

1－1. e－p@k outline

e-p@k is general term of production support system to monitor integrated overall production process and to execute investigation of cause to interfere equipment operation.
You can utilize this product as a tool to find problem process out of overall production processes, to grasp abnormal state and idle time remained within equipment by specific focusing of problem phenomena in the problem process, and to help operation rate improvement activities in production process by investigating cause of failure that has no recurrence.


Factory
In plant LAN
Storing control function
Visualizing tool
e-p@k
Andon
Collecting function
Bridge
1. Problem process can be observable.
2. Problem phenomenon can be identified.
3. Equipment idle time can be grasped.
CF card
※ Remained problems
・Variation among processes
・Loss time induced equipment error disposition and taking action
・Loss time induced jig replacing set-up, etc.
・Bug present in PLC programming
・Operation failure of actuator and sensor
・Incorrect timing
4. Not producible failure cause can be grasped!
5. Abnormal state in overall processes can be grasped!
6. Equipment stop time can be reduced by predictive maintenance!
Analysis function (Personal terminal)
Office

(1). Basic workflow


PLAN
①. Collecting condition setting
Setting is made what condition and where shall be collected by addressing to destination of PLC information.
PLAN
②. Drawing condition setting
Setting is made how to draw and analysis collected PLC information and under what condition.
DO
③. PLC information collecting
Actually connect to PLC and collect information from operating equipment.
CHECK
④. Drawing·analysis
Collected PLC information is made drawn, analyzed, and displayed to investigate the cause.
Analyzed result
ACTION
⑤. Operation rate improvement activity
Improvement activities are executed for the causes that are preventing improvement of operation rate.

Operation rate of production process is made improved by circulating "PDCA cycle" mentioned above.

(2). Structure and commercial goods of e-p@k

Following commercial goods can be selected so that effective operation rate improvement activity can be made matching with production process of customer.

Product name	Product model	Explanation
Machine data recorder (Collecting box-PC)	MDR－3004	Permanent installation model BOX-PC to collect information on equipment
Collecting software package	MDR (S) －3004	Software package to collect information on equipment
Drawing software package	MDV－3004	Software package to draw·analyze information on collected equipment

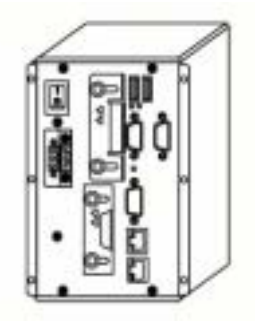
Internet explorer Microsoft R IE 5.5 later is required to operate machine data recorder MDR-3004 and collecting software package MDR (S)-3004. User is required to install previously.
Also **address information data (EPS)** previously prepared by drawing software package is required to make machine data recorder MDR-3004 collecting.

2. Machine data recorder(MDR-3004)outline

2—1. Machine data recorder structure

(1). Machine data recorder model

Part name : Machine data recorder
Model : MDR-3004



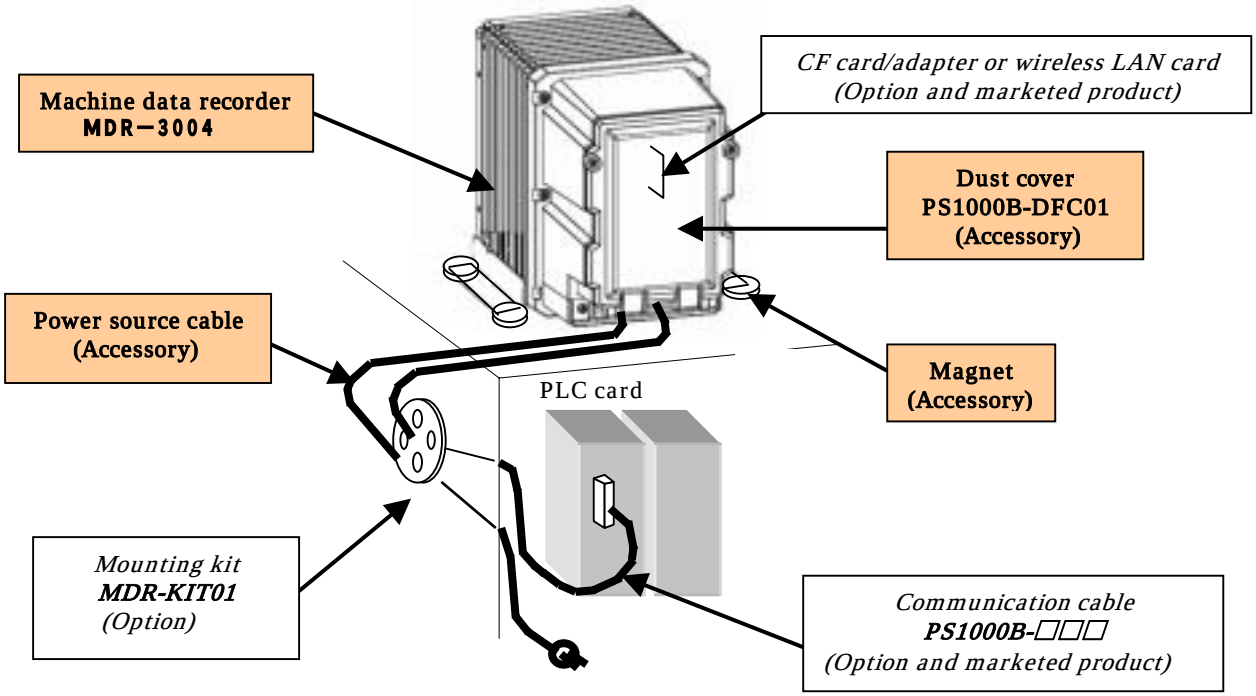
Dust cover (accessory)

(2). Standard equipment

BOX-PC main body (System CF built-in)	1 unit
Power source cable	1 pc
Fixing bracket	1 set (2 pieces)
Fixing magnet	1 set (4 pieces)
Operation manual (Japanese/English)	1 copy each
CD-ROM (User manual)	1 sheet
Guarantee certificate	1 sheet
Dust cover (PS1000B-DFC01)	1 unit
LAN cross cable 2m	1 set

Machine data viewer (Model: MDV-3004) is required separately to draw collected data.

2—2. Optional part



(1). Communication cable
This is connection cable with PLC.

Model: PS1000B-□□□ (Each model of cable is entered into □□□.)

−C1	:	Cable for Sharp JW20
−C3	:	Cable for Sharp JW50〜100
−CM1	:	MELSEC A series, QnA series
−CM2	:	MELSEC A1FX (PLC side 25 pin type)
−CM3	:	MELSEC A1FX (PLC side 9 pin type)
−CO1	:	Cable for OMRON C series RS232C link unit (LK series)
−CO2	:	Cable for OMROM C200HX/HG/HE (α series) RS232C port
−CO3	:	Cable for C20H/28H/40H RS232C link unit
−CO4	:	Cable for OMROM CV series HOST port (RS232C)
−CA1	:	Cable for Allen-Bradley SLC500 series

(2). Mounting kit
This is mounting part to mount machine data recorder to equipment.

Model : MDR−KIT01

Large size multi connector	1 pc
Ground packing	1 pc
Blind plug 1	1 pc
Blind plug 2	1 pc

(3). CF card and adapter for data taking out (recommended model)

Model : CFS series and PCCF-ADP (adapter) made of I/O data

(4). Wireless LAN card (Recommended model)

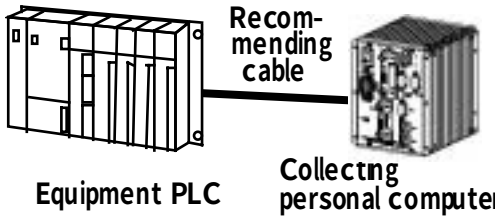
Model : Wireless LAN PCMCIA card (WLI-PCM-L11GP) made of BUFFALO
Access point is WLA-L11G made of BUFFALO.

The third chapter
Connection method classified PLC model

1. Connection with PLC made of MITSUBISHI Electric Co., Ltd.

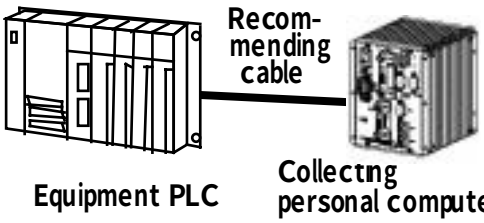
1－1. MELSEC-A series

MELSEC A series responding model	A1(N)、A1FX、A2C／A2CJ、A2(N)／A2S、 A2SH、A0J2H、A2U／A2US、A2USH－S1、 A3U、A4U、A3(N)、A3H、A1S／A1SJ、 A1SH／A1SJH、A2A、A3A
PLC connection point	CPU port
Collecting BOX connection point	**COM2(RS422)** port
Recommending cable	**CM1** (Made of MEIJI Electric Industries Co., Ltd)



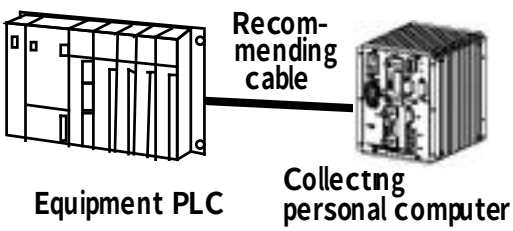
1－2. MELSEC－Q series

MELSEC Q series responding model	Q00J、Q00、Q01、Q02H、Q06H、Q12H、 Q25H、Q02H A－Mode Q06H A－Mode、Q12H A－Mode
PLC connection point	CPU port
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	QC30R2 (Made of MITSUBISHI Electric)



1－3. MELSEC－QnA series

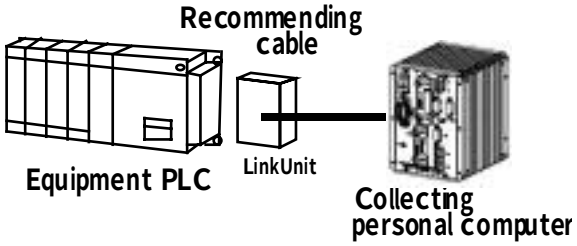
MELSEC QnA series responding model	Q2A、Q2A－S1、Q3A、Q4A
PLC connection point	CPU port
Collecting BOX connection point	**COM2(RS422)** port
Recommending cable	**CM1** (Made of MEIJI Electric Industries Co., Ltd)



2. Connection with PLC made of OMROM Co., Ltd.

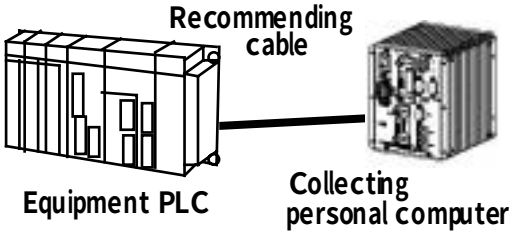
2－1. C series

SYSMAC C series responding model	SYSMAC C series (C200H,etc.)
PLC connection point	Verifiable port Make setting of C120-LK201 into CTS changeover external in 19200 7.2E1:N procedure.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	C120-LK201-V1～XW2Z-200P (Made of OMRON) C120-LK201-V1～CO1 (Made of MEIJI Electric Industries Co., Ltd)



2－2. α series

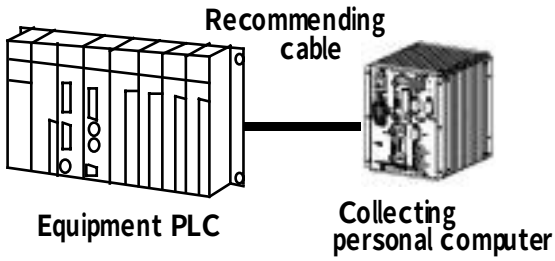
SYSMAC α series responding model	C200HX、C200HG、C200HE
PLC connection point	Verifiable port Set port setting at upper link 19200 7.2.E.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	CQM1-CIF01 (Made of OMRON)



PLC connection point	RS232C port Set port setting at upper link 19200 7.2.E.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	**CO4** (Made of MEIJI Electric Industries Co., Ltd)

2－3. CS series (including CJ)

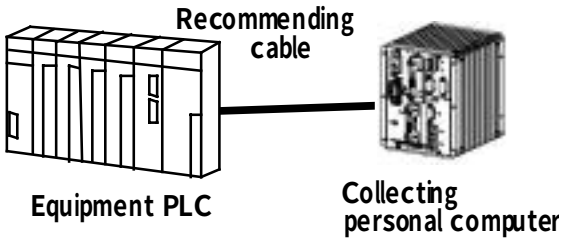
SYSMAC CS series responding model	CS1H、CS1G、CJ、CJ1
PLC connection point	Verifiable port Set port setting at upper link 19200 7.2.E and make SW4 of PLC turned on.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	CS1W-CN226 (Made of OMRON)



PLC connection point	PORT Set port setting at upper link 115200 7.2.E.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	**CO2** (Made of MEIJI Electric Industries Co., Ltd)

2－4．CV series

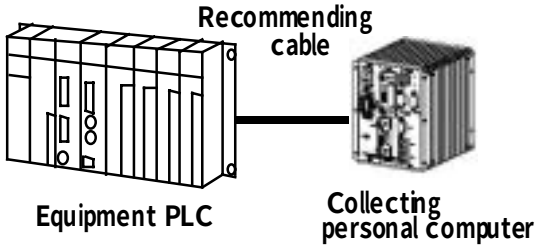
SYSMAC CV series responding model	CV500、CV1000、CV2000 CVM1
PLC connection point	HOST (Set switch at 232C)
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	**CO4** (Made of MEIJI Electric Industries Co., Ltd)



2－5．CQM1 series

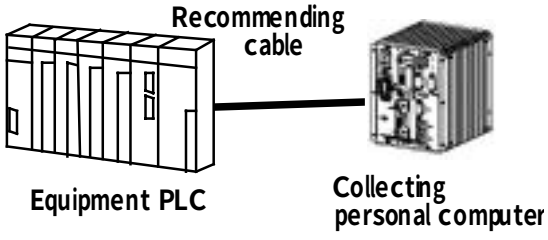
SYSMAC CQM1 series responding model	CQM1 series
PLC connection point	Verifiable port Set port setting at upper link 19200 7.2.E
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	CQM1-CIF01 (Made of OMRON)

PLC connection point	232C port Set port setting at upper link 19200 7.2.E.
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	**CO2** (Made of MEIJI Electric Industries Co., Ltd)



2－6．CPM series

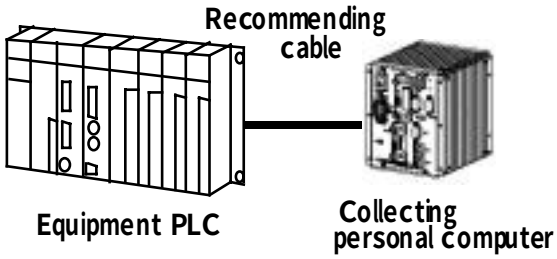
SYSMAC CPM series responding model	CPM series
PLC connection point	Verifiable port Set port setting at upper link 19200 7.2.E
Recommending cable	CQM1-CIF01 (Made of OMRON)



3. Connection with PLC made of Sharp Co., Ltd.

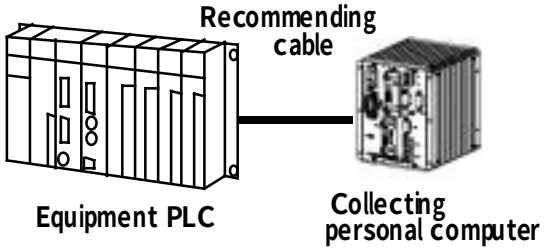
3－1. JW series (1／2)

JW series responding model	JW20／20H、JW30H
PLC connection point	Programmer port
Collecting BOX connection point	**COM2(RS422)** port
Recommending cable	C1 (Made of MEIJI Electric Industries Co., Ltd)



3－2. JW series (2／2)

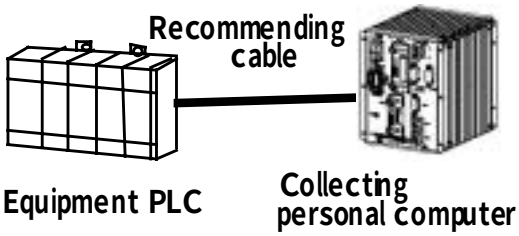
JW series responding model	JW50／JW70／JW100 JW50H、JW70H、JW100H
PLC connection point	Programmer port
Collecting BOX connection point	**COM2(RS422)** port
Recommending cable	C3 (Made of MEIJI Electric Industries Co., Ltd)



4. Connection with PLC made of Allen-Bradley

4－1. SLC500 series

Responding model	SLC500
PLC connection point	RS232C port
Collecting BOX connection point	**COM1(RS232C)** port
Recommending cable	1747-CP3, SER, A (Made of Allen-Bradley) or CA1 (Made of MEIJI Electric Industries Co., Ltd)

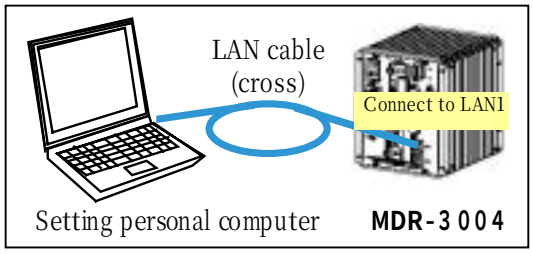


The fourth chapter Operation explanation of MDR

1. Connection with MDR

In this chapter outline of e-p@k MDR-3004 and connection method with setting personal computer is explained.

1-1. Connection with e-p@k MDR-3004

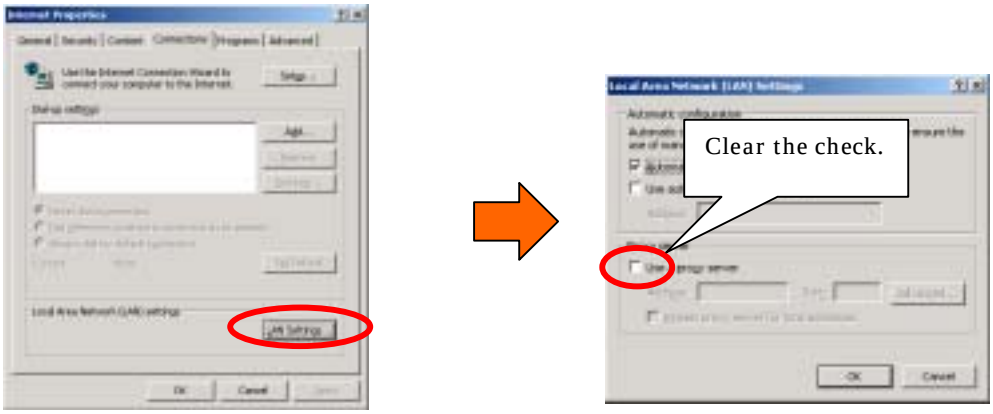


①. Connect setting personal computer and MDR-3004 through LAN cable (cross).

②. Make Internet explorer start using personal computer and click「Tool (T)」→「Internet option (O)」to display internet option dialogue.

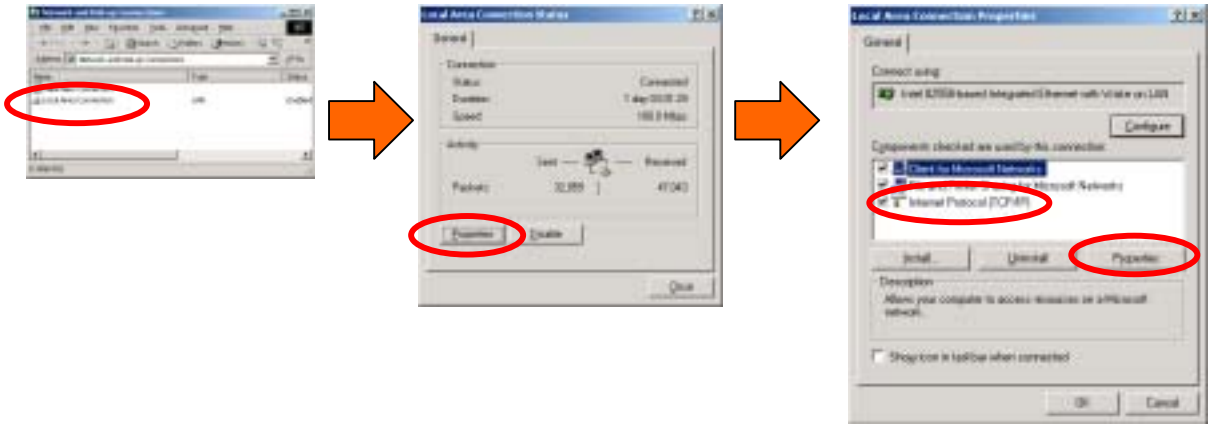
③. Click "Connection" tag of「Internet Properties」dialogue and click "Local Area Network (LAN) setting" button that is inside frame of LAN Settings..

④.「Local Area Network (LAN) settings」dialogue is displayed then clear the check of "Use proxy server" that is inside of "Proxy server".



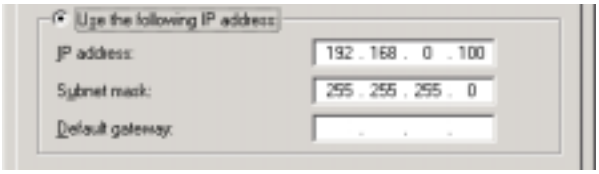
⑤. Click OK button and save「Local Area Network (LAN) settings」.

⑥. Double click「Network and Dial up Connections」at「Control panel」to display「Local Area Connection Properties」.



⑦. Click “Overall” tag from「Local Area Connection Properties」dialogue and select “Internet Protocol (TCP/IP)”, after this click [Properties] button to make「Internet Protocol (TCP/IP) Properties」dialogue display.

⑧. Select “Use next IP address” at「Internet Protocol (TCP/IP) Properties」and enter IP address of following.



IP address	:	192. 168. 0. 100
Subnet mask	:	255. 255. 255. 0

⑨. Click [OK] button to save「Internet Protocol (TCP/IP) Properties」.

2. Start of data collecting setting screen

2－1. Start of MDR－3004 data collecting setting screen

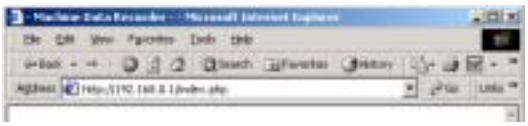
MDR-3400 permanent installation type machine data recorder executes setting･referencing in data collecting from host on MDR-3004 by HTTP protocol server function using WEB browser.

It must be noticed that before collecting setting address, information EPS data (address specified data of collecting PLC) must be prepared using 「Collecting address setting」 screen in advance.Refer to user manual of MDV-3004 for preparation method of address information EPS data.

(1). Start of WEB browser

Start WEB browser (Internet explorer).

Enter following address into address (D) using WEB browser and push return key.



http://192.168.0.1

(Note). Trouble shooting

Display will be as shown in right figure when MDR-3004 is not connected normally. Confirm following items.。

①. Is power source of MDR-3004 turned on?
②. Is LAN cable connection between personal computer and MDR-3004 executed correctly?
③. Is cross cable used for connection LAN cable?
④. Isn't there any breakage in connection LAN cable?

(2). Entering of network password

①.「Entering of network password」 screen is displayed when ENTER is clicked at data collecting screen.

②. After entering of user name and password click OK.

【Initial setting】 User name (U) e-pak
Password (P) e-pak

※Customer can change user name and password.
Detail is referred to「2-7. (2) Setting of user password」.

③.「Recorder state」 screen is displayed.

3. Explanation of data collecting setting

3—1. Setting of data collecting screen

Registration is required for destination address of connecting PLC when collecting is made by MDV-3004.Pay attention that before registration is made preparation of address information EPS data is required in advance.Preparation of address information EPS data is referred to user manual for MDV-3004.

(1). Machine data recorder collection setting

Click “Collect Setting” on「Recorder Status」screen then「Collection setting」screen is displayed as shown below.

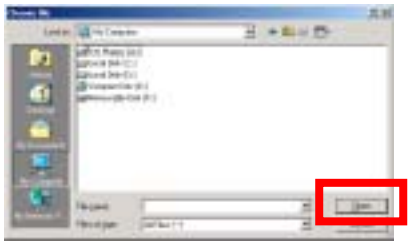
(Note) SAMPLE. EPS is displayed in collecting data file list of initial state

(2). Upload of EPS file

Makes “Address information file (EPS)” upload using「Collecting setting」screen.

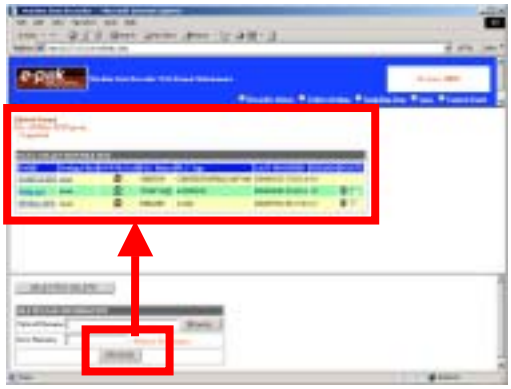
①. Click Browse button at「Collecting setting」screen then「Choose file」screen is displayed.

②. Select “Address information file (EPS)” and click Open.



③. Selected “Address information file (EPS)” is displayed at uploading file name.

④ Confirm name of “Address information file (EPS)” and bush UPLOAD button.
When name of saving “Address information file (EPS)” is changed input saving file name before pushing UPLOAD button.



【Caution】 When saving file name is not inputted, file name is used as it is. Character other than 「!」, 「～」, 「-」, 「_」 must not be used as file name.

「Upload Status」
File: ■■■■■■ FPS upload…
is completed.

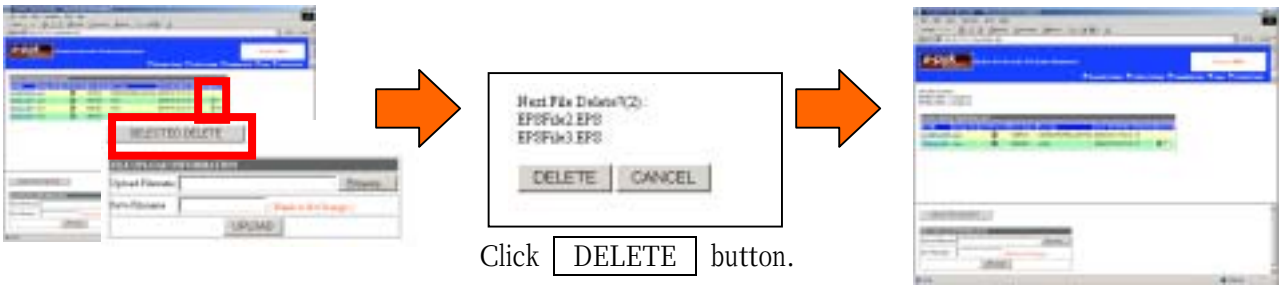
Upload state is displayed and upload is completed when message “Completed” is displayed.

(3). Deletion of uploaded EPS file

This is explanation how to delete uploaded “Address information file (EPS)”.

①. Click DELETE icon when address information file (EPS) is deleted individually.

②. Click check box of deleting EPS file and click SELECTED DELETE button when address information files (EPS) are deleted as a whole.



Click DELETE button.

(4). Collecting setting of EPS file

Setting of "Address information file (EPS)" is executed to execute collecting.
Click file name collecting setting required file name from collecting data file list.

(5). Input of EDP file name

User can change the name although default file name of collected result data EDP file becomes the same name.

【Caution】 Character other than 「!」, 「～」, 「-」, 「_」 must not be used as file name.

(6). Setting of record mode

Mode of collected result data EDP file at collecting is specified.

Mode at collecting is selected from ring mode selection list.

「0－Disable」 : ring mode becomes invalid.
「1－Enable」 : ring mode becomes valid.

What is ring mode?

In this mode, data collecting is continued even collecting of specified case numbers were terminated until collecting termination button is pushed or termination trigger is turned on. At this time the data is always overwritten.
At manual mode it wouldn't mind even if 「0 - Disable」. Make "Trigger mode" valid together with making "Ring mode" valid.

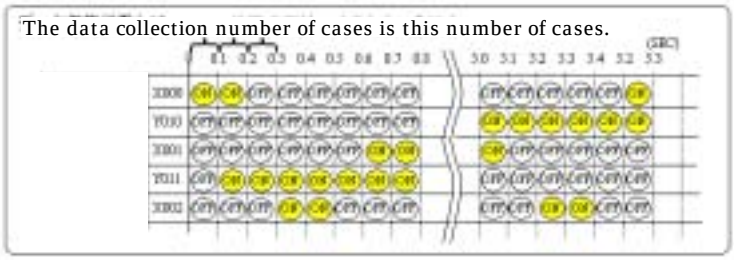
Ring mode
【Operational availability UP】
Unattended measurement of erroneous phenomenon can be measured by collecting sporadic error stop as termination trigger at short stop investigation.

(7) . Collecting data setting

Condition is specified when collected result is written into collected result data EDP file.

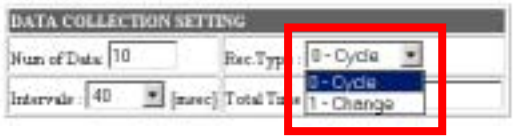
①. Setting of collecting case number

Set information collecting number from PLC.



②. Setting of record type

Set timing of information collecting from PLC.

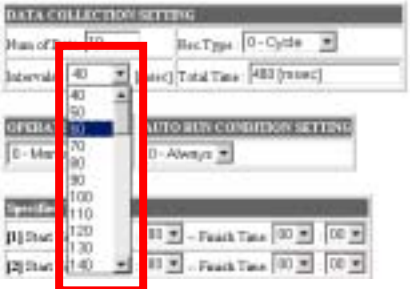


Record type setting:
0: Cycle
1: Change

Data is recorded at specified frequency when “Cycle” is selected.
Data is recorded at collecting data is changed when “Change” is selected.

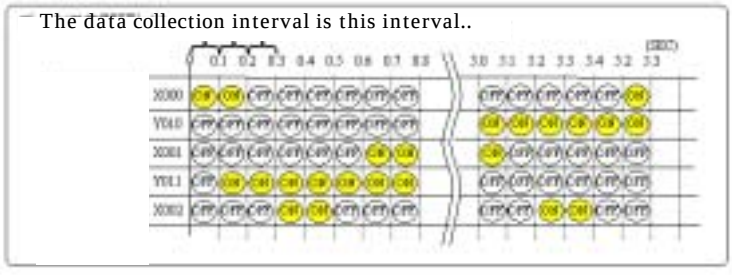
③. Setting of collecting interval

Information collecting interval from PLC is set when “constant frequency” is selected at setting of record type in setting item ②.



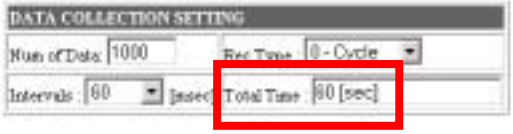
【Caution】It becomes maximum speed value automatically when communication speed with PLC is set less than maximum speed value.

Collecting interval input range:
～ millisecond



④. Display of total time of collecting

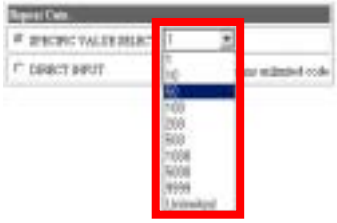
Information total time from PLC is displayed when “Cycle” at setting of record type in item ② is selected.



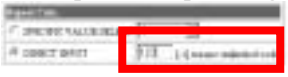
⑤. Setting of repeating number

Repeating number of times specified information collecting cases is set. Setting value of this repeating number of times becomes EDP file number. Setting number of times can be set in two ways.

Selection form specified value



Direct input of repeating number of times



⑥. Setting of operation mode

Collecting method either automatically implemented or manually implemented is set.

Operation mode setting:
0 : **Manual operation**
1 : **Automatic operation**

Collecting is manually started･stopped when manual operation is selected.
Collecting is automatically started･stopped when automatic operation is selected.

⑦. Setting of operation mode

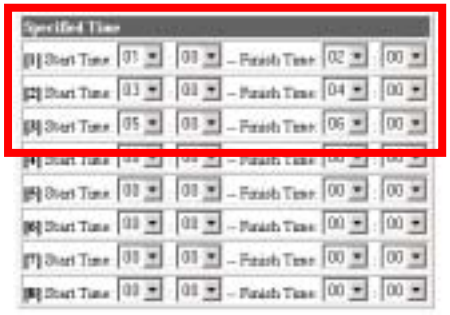
Collecting time is specified when “Automatic operation” is selected in item ⑥

Automatic operation state setting:
0 : **Always**
1 : **Specified Time**

Always data is collected when “Always” is selected.
Collecting is executed specifying collecting time when specified time is selected.
【Caution】 Valid only when automatic operation is selected.

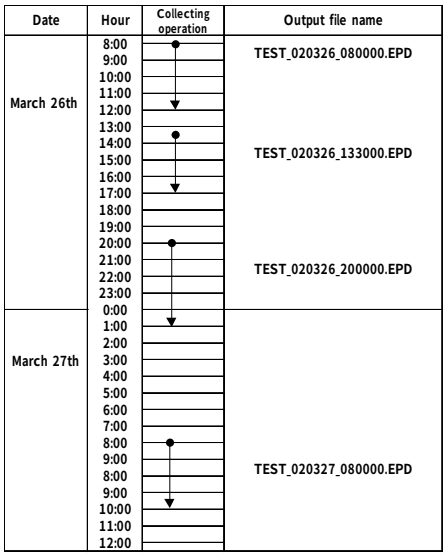
⑧. Setting of specified time at automatic operation

Collecting starting time and termination time are set when “specified time” in automatic operation at item ⑦ is selected.Time can be specified in 8 patterns.



【Caution】 Setting such as start time is 00 hour 00 minute — termination time is 00 hour 00 minute.

【Example of hour setting】
Output file name :TEST
Operation mode :Automatic operation mode
Automatic operation hour set
8:00～12:00
13:30～17:00
22:00～1:00



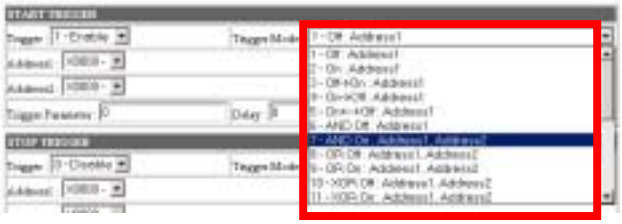
⑨. Setting of starting trigger

·Set trigger condition to start collecting.

Trigger setting:
0 : Disable
1 : Enable

Starting trigger is invalid when Disable is selected.
Starting trigger is valid when Enable is selected.

·Set type of trigger to start collecting.



Trigger type:
Selection is made from 24 types in selection list.

Details of trigger types are as following:

1—Off: Address 1 ···1 bit at OFF
2—On: Address 1 ···1 bit at ON
3—Off→On: Address 1 ···1 bit at OFF→ON
4—On→Off: Address 1 ···1 bit at ON→OFF
5—On←→Off: Address 1 ···1 bit at ON←→OFF
6—AND Off: Address 1、Address 2 ···2 bit when AND condition is OFF
7—AND On: Address 1、Address 2 ···2 bit when AND condition is ON
8—OR Off: Address 1、Address 2 ···2 bit when OR condition is OFF
9—OR On: Address 1、Address 2 ···2 bit when OR condition is ON
10—XOR Off: Address 1、Address 2 ···2 bit when XOR condition is OFF
11—XOR On: Address 1、Address 2 ···2 bit when XOR condition is ON
12—Address 1[word]< trigger parameter [constant]···comparison condition of word and constant is at [word<constant].
13—Address 1[word]<= trigger parameter [constant]···comparison condition of word and constant is at [word<=constant].

14—Address 1[word]= trigger parameter [constant]···comparison condition of word and constant is at [word=constant].
15—Address 1[word]<> trigger parameter [constant]···comparison condition of word and constant is at [word<>constant].

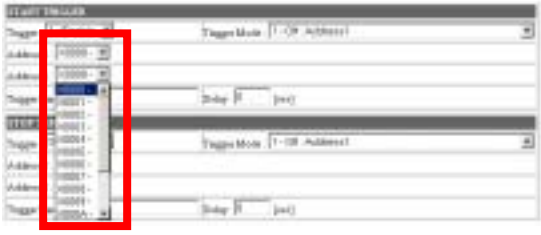
16—Address 1[word]> trigger parameter [constant]···comparison condition of word and constant is at [word>constant].
17—Address 1[word]>= trigger parameter [constant]···comparison condition of word and constant is at [word>=constant].

18—Address 1[word]< Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1<word 2].
19—Address 1[word]<= Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1<=word 2].
20—Address 1[word]= Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1=word 2].
21—Address 1[word]<> Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1<>word 2].
22—Address 1[word]> Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1>word 2].
23—Address 1[word]>= Address 2[word 1] ···comparison condition of word 1 and word 2 is at [word 1>=word 2].
24—Address 1[word] at change ···when word data is changed

·Sets address 1 of trigger to start collecting.

【Caution】
Word comparison in this software cannot be executed according to convenience of PLC side concerning timer and timing bit of counter, completion of bit, and counter bit.

·Sets address 2 of trigger to start collecting. Address 2 is valid when trigger condition is AND·OR·XOR.



·Sets parameter of trigger to start collecting. Parameter is valid when comparison condition with constant value is set by trigger condition.

Value of trigger·parameter must be set by 『Binary value』. Operation is executed by 『Binary value』in this software. Other than binary value is used depending on PLC model.

·Sets delay time of trigger to start collecting. Collecting will be started after setting time has been elapsed when trigger condition was established.

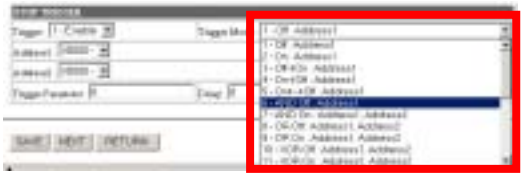
⑩. Setting of termination trigger

·Sets trigger condition to terminate collecting.

Trigger setting:
0 : **Disable**
1 : **Enable**

Termination trigger is invalid when Disable is selected.
Termination trigger is valid when Enable is selected.

·Sets type of trigger to terminate collecting.



Trigger type:
Selection is made from 24 types in selection list.

Detail of trigger type is the same with start trigger.

·Set address 1 of trigger to terminate collecting.

·Sets address 2 of trigger to terminate collecting. Address 2 is valid when trigger condition is AND·OR·XOR.

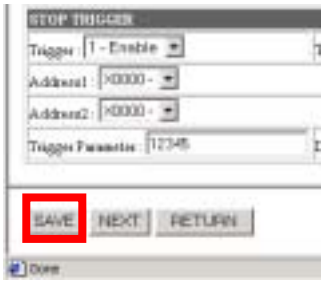
·Sets parameter of trigger to terminate collecting. Parameter is valid when comparison condition with constant value is set by trigger condition.

Value of trigger·parameter must be set by 『Binary value』. Operation is executed by 『Binary value』in this software. Other than binary value is used depending on PLC model.

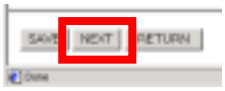
·Sets delay time of trigger to terminate collecting. Collecting will be terminated after setting time has been elapsed when trigger condition was established.

⑪. Termination of collecting setting

·Click SAVE button to save collecting setting contents.



·When NEXT button is clicked collecting setting content is saved and program shifts to recorder state.

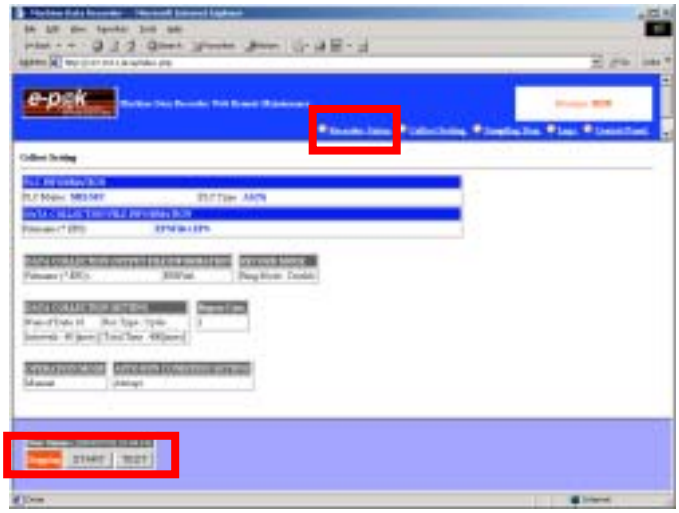


·When RETURN button is clicked program returns to collecting data file list screen.

3－2. Collecting of data

(1). Collects data from PLC

①. Click [Recorder Status] then collecting condition is displayed.
Information of PLC is collected under this condition

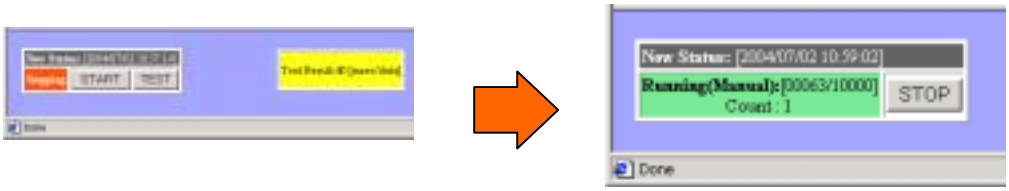


【Caution】
Confirm personal computer and PLC are connected.

②. Click [TEST] button then test is started and "Test result" is displayed after a while. (Note)

Communication speed with PLC can be observed by "Test Result".

③. Click [START] button then data collecting from PLC is started.



Screen display under collecting processing

【Caution】
"Stopping" is displayed when test is completed. Required time for test is as following when connection is normal.

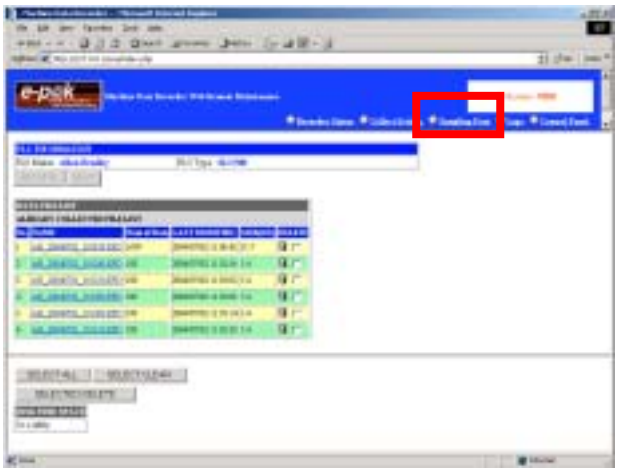
(Sampling frequency) ×10 times＋3～5 seconds for Web access time

Test will not be completed even if above calculated time has been elapsed when cable is not connected normally.Again confirm that cable connection is normal.
Connection test is executed maximum for 60 seconds. Test is automatically resumed when the connection becomes normal during the time.

3－3. Confirmation of collected data

(1). Displays collected “Collecting result data EPD file” from PLC.

①. Click [Sampling Data] then list of “Collecting result data EPD file” is displayed.



Individual deletion of “Collecting result data (EDP) file”

Click “DELETE” icon when collected “Collecting result data (EDP) file” is deleted.

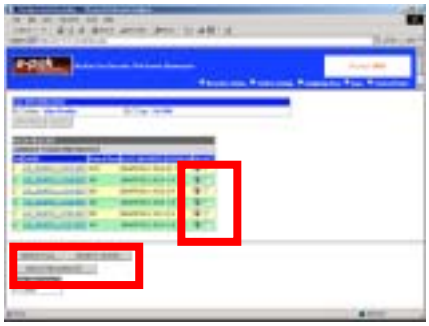
Click [DELETE] button.

Continuous deletion of “Collecting result data (EDP) file”

Click check box of deletion required EDP file and click [SELECTED DELETE] button when collected “Collecting result data (EDP) file” is continuously deleted.
(※ Reference)

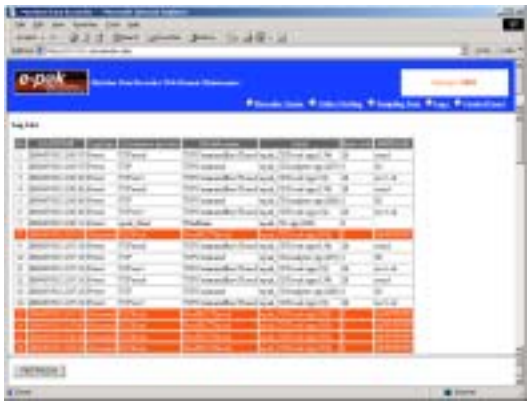
※1: Click [SELECT ALL] button then all of “Collecting result data (EDP) file” can be selected.

※2: Click [SELECT CLEAR] button then all of “Collecting result data (EDP) file” becomes out of selection.



Click [DELETE] button then selected “Collecting result data (EDP) file” is deleted.

3－4. History display



(1). Collecting history
The history is remained when collecting from PLC is executed.
Click Logs button then the history (log file) can be displayed.

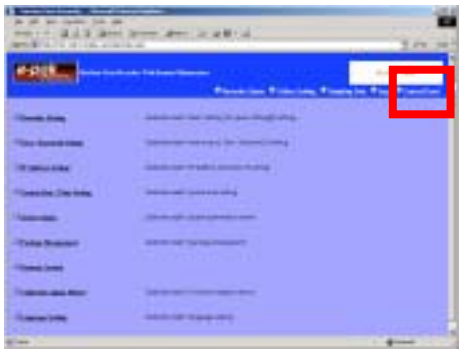
(2). Error code history
Error code is displayed at history (log file) when error is occurring.

(3). Update of history (log file) display
Click REFRESH button when display of history (log file) is updated.

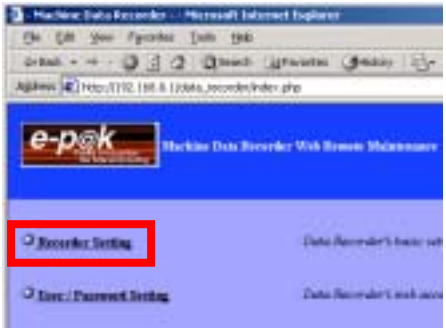
【Caution】 Occasionally Abnormal is displayed during collecting but this is only message for management of our company therefore there is no problem at all. Collecting is normally executing.

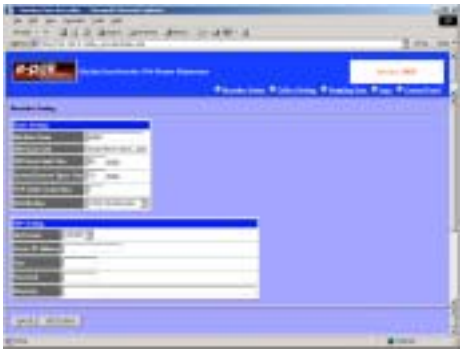
3－5. Control pnanel

Various setting is possible when Control Panel is clicked.



(1). Recorder Setting
Basic setting of data recorder is executed using「Control Panel」.

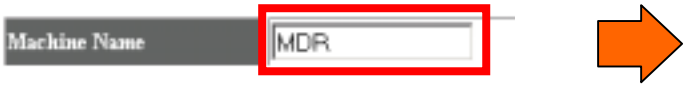


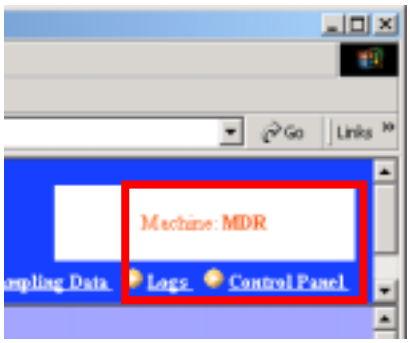


【 Basic Setting 】

①. Machine Name setting

Setting of machine name can be executed. Click and input machine name.





Inputted machine name is displayed at right top of screen.

②. EDP Data Path

This is EPD Data Path. Collected EPD data is saved at under of this path.

③. EDP Data Limit Size

Size of EPD data can be set.

④. System Reserve Space Size

This area is required for system. Shall be kept 10MB at minimum.

⑤. TCP/IP Limit Connection

Number of lines available in TCP/IP communication can be set.

⑥. Distribution Setting

Delivery method of collected EPD is set.

Selects「0: No Distribution」,「1: FTP Distribution」, or「2: Mail Distribution」 from selection list.

「 0 : No Distribution 」 : Distribution is not made.
「 1 : FTP Distribution 」 : Distribution is made by FTP.
「 2 : Male Distribution 」 : Distribution is made by male.

【 FTP Setting 】

Various settings are executed when collected result data (EPD) is FTP transferred.

①. FTP Format

File format at FTP transferring is selected.

Selects 「0 : EPD」 or 「1 : CSV」 from selection list.

「0 : EPD」 Transfers by EPD file.

「1 : CSV」 Transfers by CSV file.

②. Server IP Address

Inputs IP address of FTP server.

③. User name

Inputs user name of FTP server

④. Password

Inputs password of FTP server

⑤. Directory

Inputs transfer destination directory of FTP server.

【 Mail Setting 】

Executes various settings at mail transferring.

①. Mail Address

Inputs mail address.

②. SMTP Address

Inputs SMTP address.

③. SMTP logon ID

Inputs SMTP log in ID.

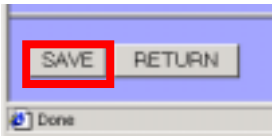
【 NTP Setting 】

Enter check mark into valid and enter IP address of NTP server when NTP (Network Time Protocol) is used.

【 Termination of recorder Setting 】

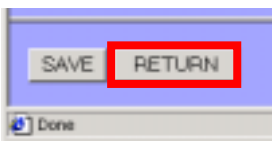
①. Saving of recorder setting

Click SAVE button then recorder setting value is saved.



②. Termination of recorder setting

Click RETURN button then returns to control panel initial screen.



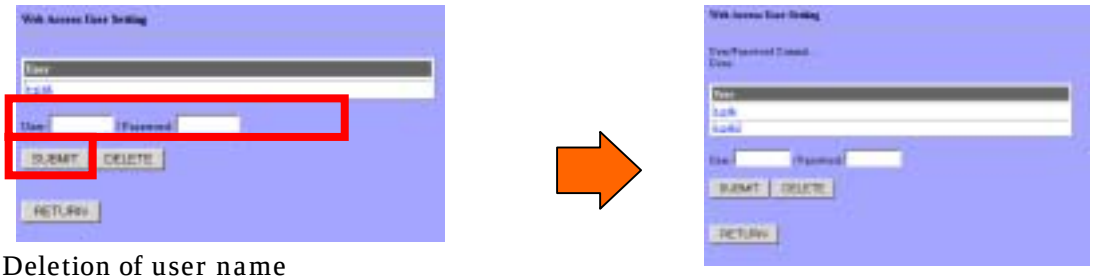
(2). User/Password Setting

Setting of Web access (user password) is executed using「Control Panel」.

Click「User/Password Setting」.
Currently set user password name is displayed.

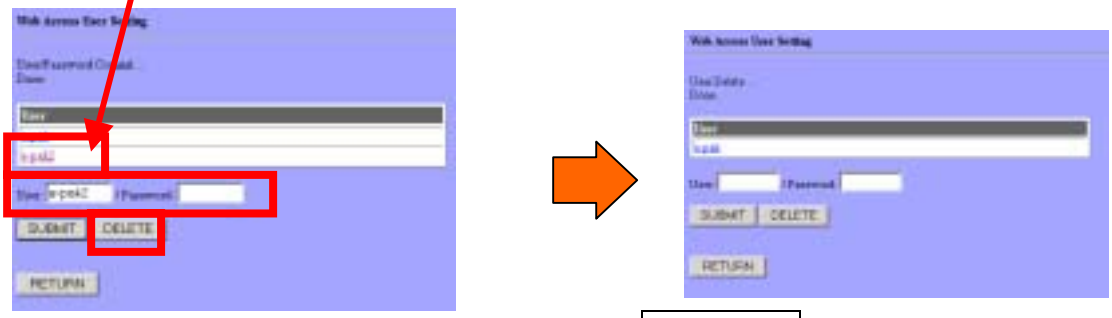
①. Addition of user name

Input user name and password and click SUBMIT button then user name is added.



②. Deletion of user name

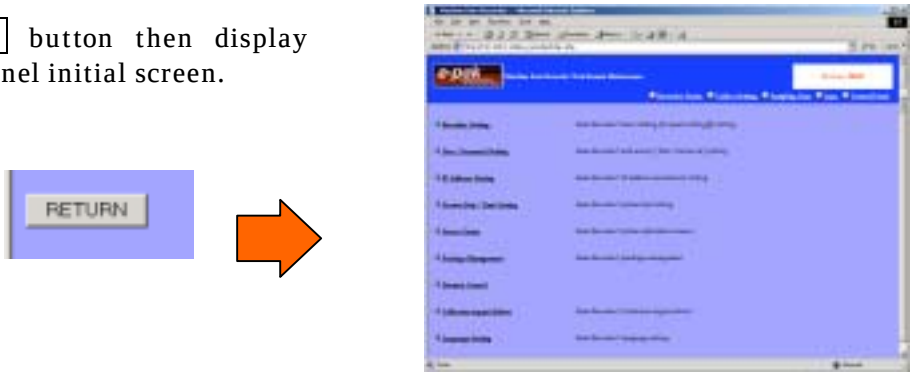
Click deletion required user name.



Confirm user name is selected correctly and click DELETE button.

③. Return

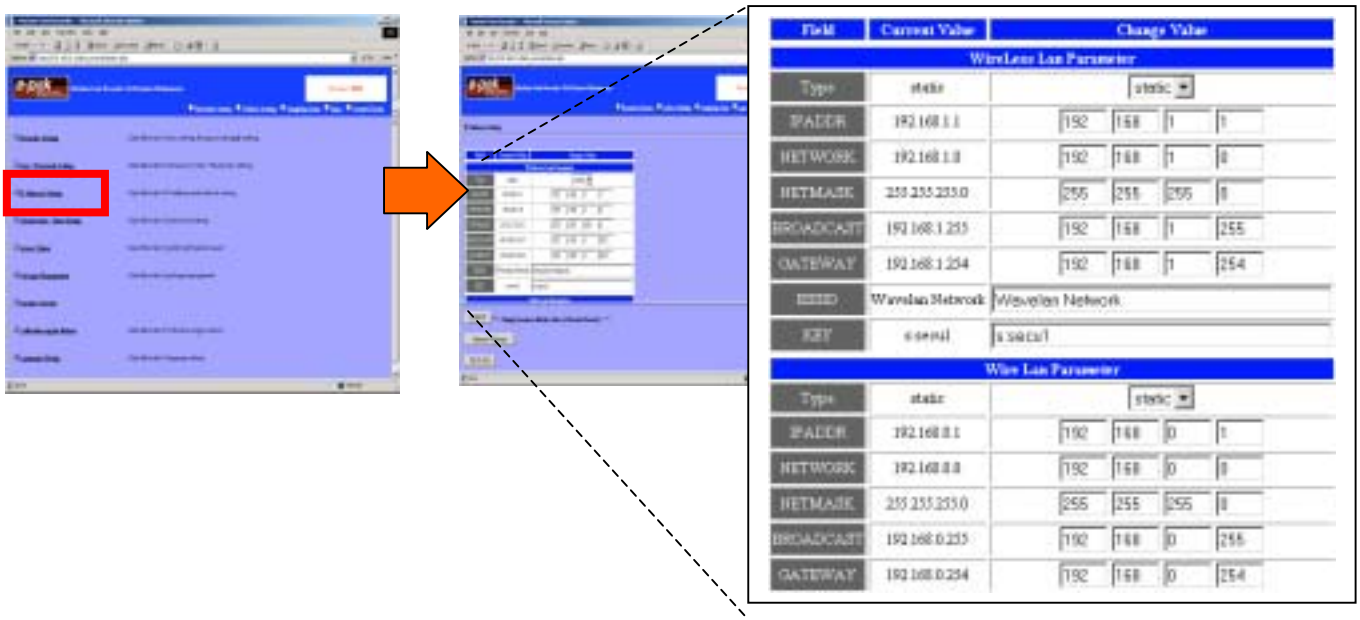
Click RETURN button then display returns to control panel initial screen.



(3). IP Address Setting

IP address of data recorder and network can be set.

IP address setting is displayed when [IP Address Setting] is clicked.



①. Make parameter of each network customize matching to user's environment.

②. Click [SUBMIT] button and send changed parameter to MDR-3004 when parameter of each network setting was changed.

Screen of IP address setting is overwritten when sending is completed.

③. Click [Network Restart] button to restart.

Enter ID and password.

Click [YES] button to enter.

> Surely execute restart because changed network setting makes MDR-3004 valid at restarting when setting change was executed.

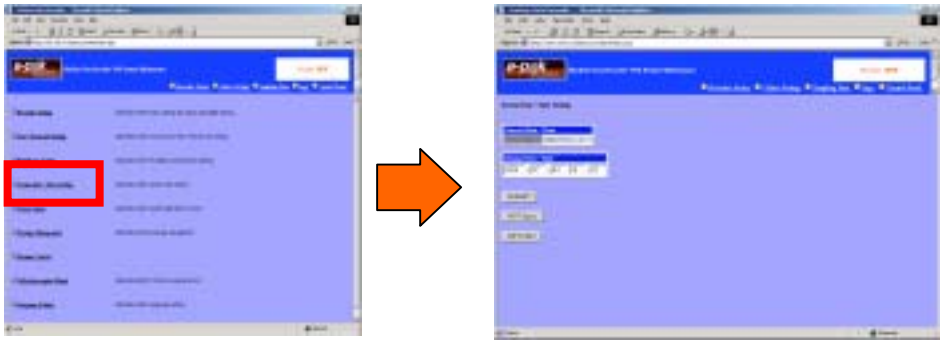
④. Return

Click [RETURN] button then control panel display becomes initial screen.

(4). System Date / Time Setting

System date and time of data recorder can be set.

Click [System Date / Time Setting] then server state is displayed.



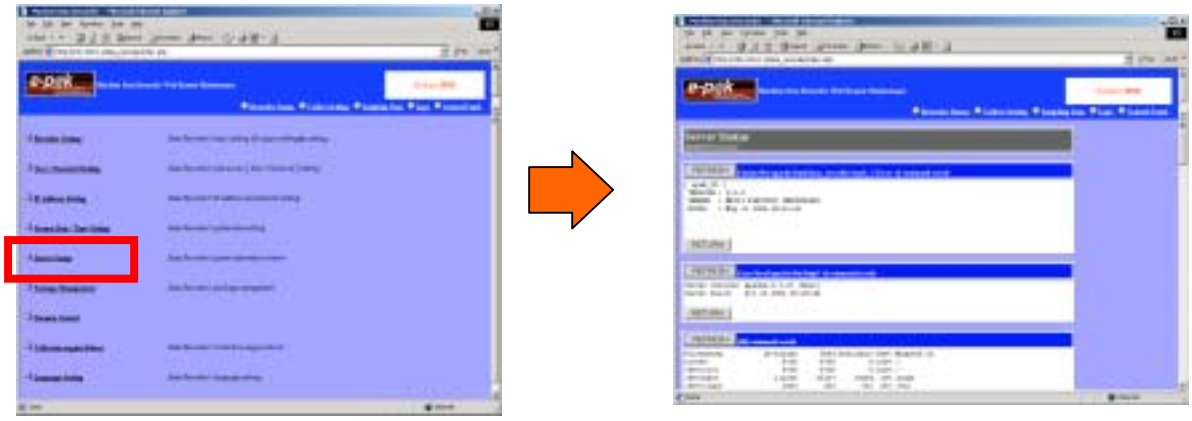
①. Execute setting of date·time matching to user's environment.

②. Click [SUBMIT] button and send changed data to MDR-3004 when setting of date·time was changed.

(5). Server Status

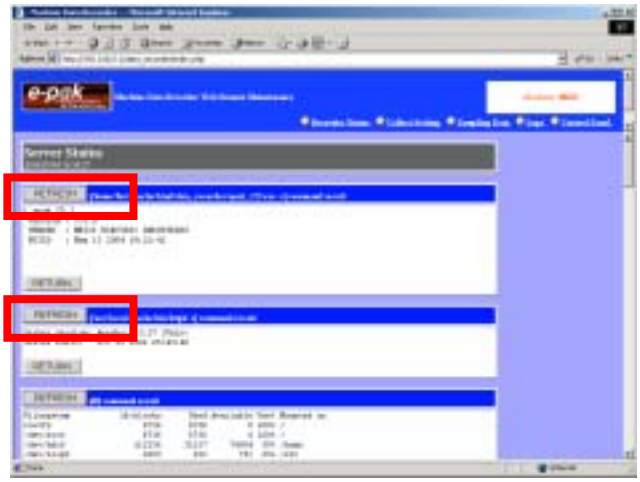
System information of data recorder can be viewed.

Click [Server status] then server state is displayed.



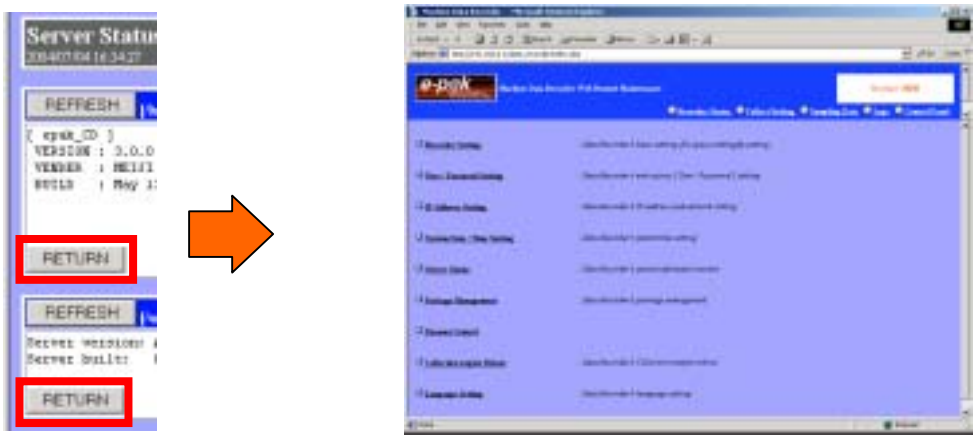
①. Update of server state display

Click [REFRESH] button then server state display is renewed.



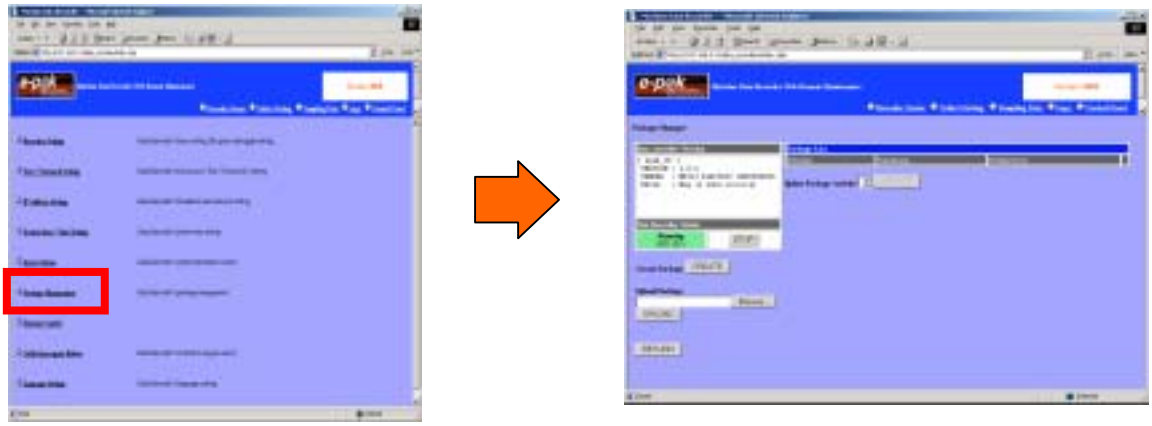
②. Return

Click [RETURN] button then display returns to control panel initial screen.



(6). Package Management

Version information and state of data recorder can be viewed.
Also system upload of MDR-3004 is executed here. Use this function when service pack, etc. is released.



①. Package preparation of current MDR-3004 system

Prepares package of current MDR-3004 system. Click CREATE button for package preparation.

Click RETURN button when preparation of package was completed. Archives data is added to 「Renewal package･archives」.

②. Download of current system

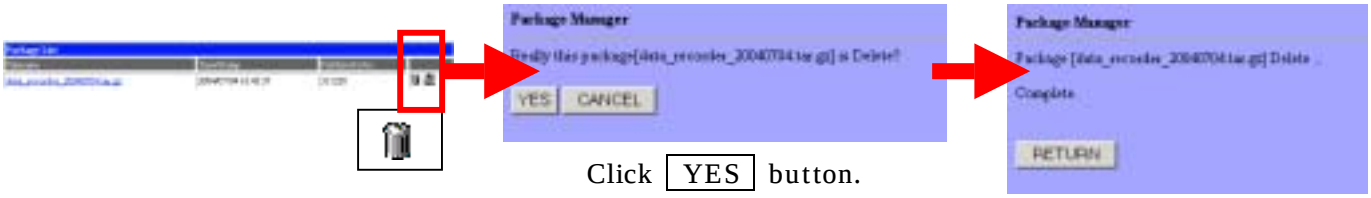
Package of current MDR-3004 system that was prepared in previous section can be downloaded from MDR-3004 to personal computer.

Click OK button.

Specify saving intended holder and save download data.

③. Deletion of package

Package can be deleted from MDR-3004.

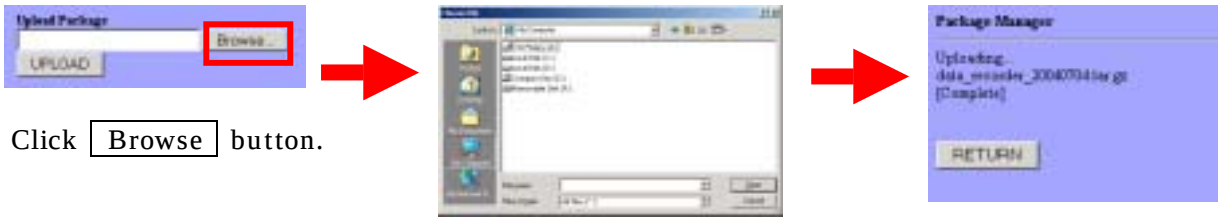


Click YES button.

④. Upload of package

Upload is executed for system of MDR-3004 when service pack, etc. is released.

・Upload of package file



Click Browse button.

Specify package file to make upload.

・Stop of machine data recorder

Operation of machine data recorder must be stopped when freezing and renewal of uploaded package file is executed.

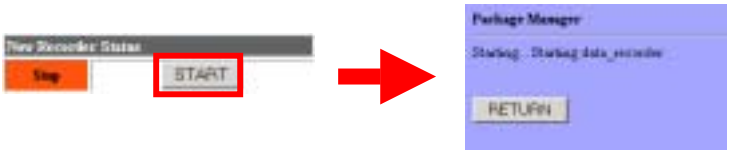
Click Stop button to stop operation of machine data recorder.

・Freezing and renewal of package file

Freezing and renewal of uploaded package file is executed. Click UPDATE button.

・Freezing and renewal of package file

Start operation of machine data recorder when freezing and renewal of uploaded package file was completed. Click START button.

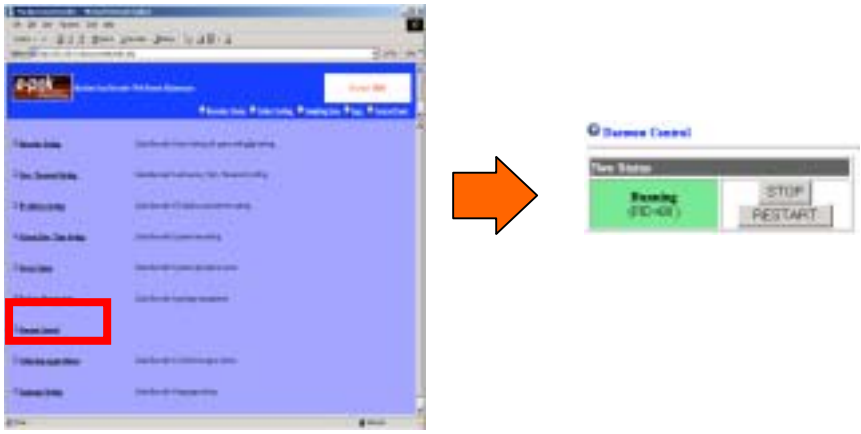


⑤. Returns to control panel screen.

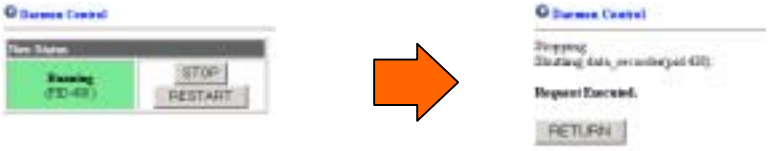
Click RETURN button then screen is returned to control screen.

(7). Daemon Control

Here making operation of machine data recorder stop and upload is possible.
Also operation of machine data recorder can be restarted after uploading.



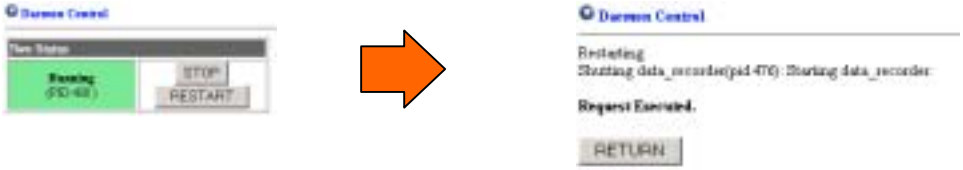
·Make operation of machine data recorder stop. Click [STOP] button.



·Make operation of machine data recorder stop. Select package file to make upload using [Browse] button.

·Make operation of machine data recorder start. Click [START] button.

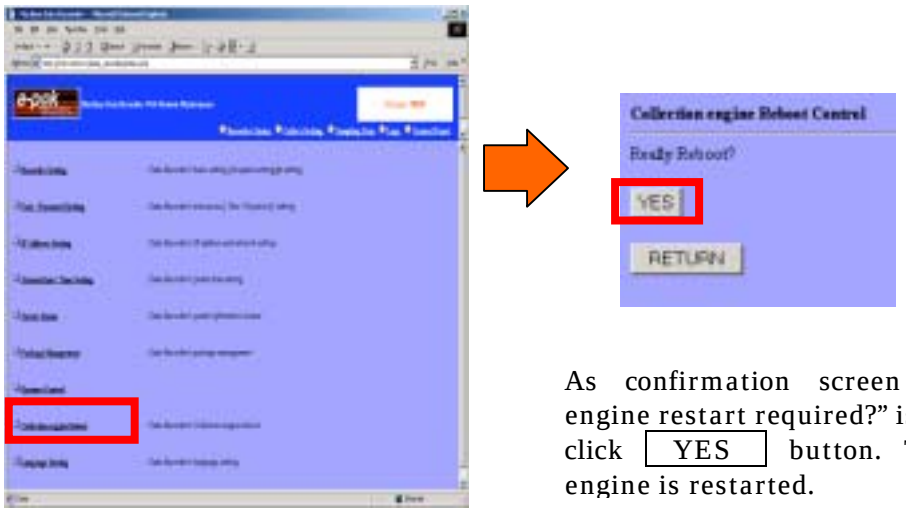
·Make operation of machine data recorder restart. Click [RESTART] button.



(8). Collecting engine Reboot

Collecting engine of data recorder can be restarted by this function when restarting of collecting engine of data recorder is required for maintenance.

①. Click [Collecting engine Reboot].



As confirmation screen "Is collecting engine restart required?" is displayed then click [YES] button. Then collecting engine is restarted.

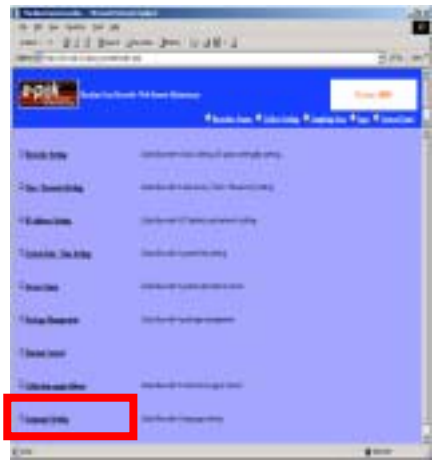
②. Return

Click [RETURN] button then display returns to control panel initial screen.

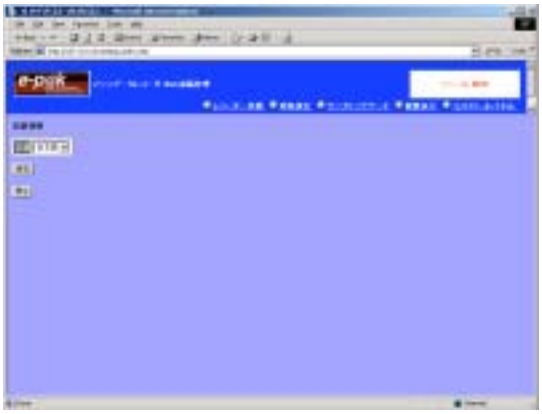
(9). Language Setting

Screen display language can be changed.

①. Click Language Setting.

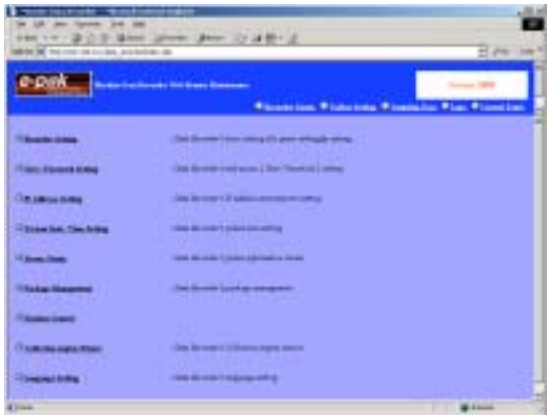


From selection list select either "Japanese" or "English" and click Save button.



②. Return

Click RETURN button then display returns to control panel initial screen.



Appenix1　e-p@k various file explannation

Various files of extension are used in e-p@k. In this appendix relation between flow of work and various files is explained. These files can be roughly classified into following 3 types when they are classified according to a series of flow from collecting to drawing･analyzing.

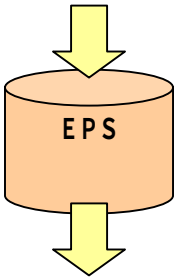
Address information data (EPS) Address specified file of PLC to collect using e-p@k.

Collecting data (EPD) Information data of collected PLC using e-p@k based on address information data (EPS)

Drawing setting data (EPG) Drawing method and sorting order, etc. are described setting data when information data (EPD) of collected PLC is drawn･analyzed.

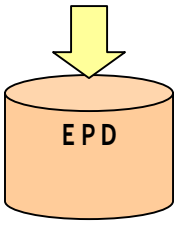
MDV－3004

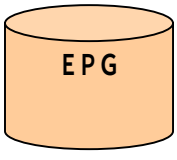
Determines the method to set “What address shall be collected” to「EPS setting」screen for making PLC collecting and saves address information data (EPS).

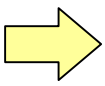


MDR－3004
MDR(S)－3004

Collects PLC information using MDR based on address information data (EPS) and saves into information data (EPD).







MDV－3004

Executes drawing･analyzing of collected data (EPD) by drawing setting data (EPG) that drawing method and sorting order are specified.

Guarantee agreement general contractual condition

This general contractual condition specifies condition of guarantee related to repairing of our product that was purchased by our customers. Customer can cancel guarantee general contractual condition when the customer cannot agree with the provision specified in this general contractual condition but in that case the customer is required to return purchased product to agency or our company without using it. Further by this general contractual condition any customer's legal right shall not be restricted.

Article 1. (Definition)

1. In this general contractual condition,「Guarantee certificate」means issued certification that repairing is guaranteed by our company previously entering product name and guarantee period.
2. In this general contractual condition,「Failure」means that product is not normally functioned even if the customer makes product operated based on correct operation method.
3. In this general contractual condition,「Charge-free repair」means that repairing of intended failure portion executed by our company free of charge when product is failed.
4. In this general contractual condition,「Charge-free guarantee」means that promising of charge-free repairing of our company provided to the customer according to condition specified in this general contractual condition.
5. In this general contractual condition,「Fair-paying repairing」means that promising of charge-free repairing of our company provided to the customer according to condition specified in this general contractual condition.
6. In this general contractual condition,「Product」means that Main body of product that have been packed at sales excluding accessories and annexed goods.

Article 2. (Charge free guarantee)

1. Customer may have right to receive charge-free repairing by requesting repairing for our company if product should be failed when the product is within guarantee period written in guarantee certificate. However, customer may not have right to receive charge-free repairing even if the product is within guarantee period when cause of repairing required is following cases:
2. When repairing is requested without submission of guarantee certificate.
3. When there is no entering such important items as product name and product serial No, etc. or these entering were suspected forged.
4. When cause of failure or breakage was falling or shock during transferring or moving by customer after delivery of product purchasing.
5. When failure or damage was occurred by incorrect usage, improper modification or repairing by customer or connection with specified equipment other than our company.
6. When failure or breakage was occurred by such external factors as fire, earthquake, thunderbolt, flood disaster, other act of providence, or abnormal voltage.
7. When consumable parts are replaced due to natural wear or deterioration.
8. When cause of failure is recognized to be customer's using method other than mentioned above.

Article 3. (Repairing)

Repairing specified in this general contractual condition is executed complying with provisions specified as following.

1. Product shall be sent to our QA Service Group Manufacturing Department Engineering Business Headquarter when repairing is requested. Concerning sending address refer to「Concerning repairing」in Instruction Manual. Shipping cost shall be charged to sending charged sending party. Sending method shall be such method that sending copy is remained as evidence of sending. Forwarding by mail is declined.
2. Repairing shall be executed disassembly of product, replacing of part, or mending. However, replace with another product having function equivalent or further capability comparing with compensation objected product will be made if should repairing is difficult or repairing cost could be the price of repairing product.
3. Concerning repairing of Compact Flash, replacing of Compact Flash or product, or formatting of Compact Flash is considered as repairing contents but our company does not prepare any backup for memorized data at repairing.
4. Replaced old parts or old product by charge-free guarantee shall be disposed at our company accordingly.
5. Replaced old parts or old product by fair-paying repairing shall be also disposed at our company accordingly but old parts, etc. may be returned when returning was requested by customer at repairing requested. However sometimes intention may not be accepted depending on property of parts.

Article 4. (Exemption clause)

1. Concerning customer purchased product, liability for damage based on default of obligation or illegal act shall be limited to purchasing part price of pertinent product excluding guilty intent or serious fault of our company.
2. Concerning customer purchased product, invisible scratch was found, regardless of provision of this general contractual condition, pertinent scratch will be repaired or replaced with scratch-less product or equivalent product free of charge but our company has not liable of compensation for loss based on this scratch.
3. Guarantee of our company is limited to function of customer purchased product from our company and concerning data memory device of Compact Flash, our company has no liability for erasing and damage of memorized data.

■ No part or whole of this product may be reproduced in any form including photocopying without permission of our company.
■ Contents･specifications of this product are subject to change without notice.
■ Please accept that our company cannot be held responsible for influence of operated result of this software and manual.
■ Although our company expends all possible means but if you should find any doubtful point please immediately inform us.
■ User registration

Enter required items into「User registration FAX paper」enclosed herewith this product and send to our company or to access to our e-p@k homepage to make your user's registration.

※ "User key" will be informed to the customer who made user registration.
※ Various services is available to the customer who made user registration on e-p@k homepage.
※ Change of user registration is not possible after user registration when product is handed over.

■ Latest version of this manual can be downloaded from e-p@k homepage. (User registration is required.)
■ Concerning education

「Operator education of e-p@k」is implementing based on curriculum for effective use of our e-p@k. Refer to e-p@k homepage for detail.

■ Concerning trademark

Formal name of Microsoft ® Windows ® is Microsoft ® Windows ® operating system.
Microsoft ® Windows ® is registered trademark of United State Microsoft R Company in United State and other countries.
Ethernet is the trademark of United State Western Digital Company.
Also company name, product name listed in this manual is trademark or registered trademark of each company.

Machine Data Recoder User's Manual

Issuing of initial version May 2004

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